

Description of two new species of Muricidae from Martinique and Honduras and re-evaluation of *Muricopsis* s.s. in the western Atlantic

Roland HOUART

Research Associate

Institut royal des Sciences naturelles de Belgique
rue Vautier, 29, 1000 Bruxelles, Belgium

KEYWORDS. Gastropoda, Muricidae, Muricinae, Muricopsinae, re-evaluation, new species, West Atlantic.

ABSTRACT. Two new species of Muricidae are described: *Dermomurex* (*D.*) *colombi* from Martinique and *Murexsul chesleri* from Honduras. *D. colombi* is compared with *D. elizabethae* (McGinty, 1840), *D. pauperculus* (C.B. Adams, 1850) and *D. pacei* Petuch, 1988. It differs from these species in its smaller size, different intritacalx, and few other morphological characters. *M. chesleri* is compared with *M. oxytatus* (M. Smith, 1938) from which it differs in few stable morphological characters. The western Atlantic species which are usually included in *Muricopsis* s.s. are now combined with *Murexsul* Monterosato, 1890.

INTRODUCTION. The Recent and fossil western Atlantic muricids were commented and illustrated by Vokes in numerous papers published in the Tulane Studies of Geology and Paleontology. In her publications, Vokes (1975, 1992, 1994) thoroughly studied *Dermomurex*, *Muricopsis* and *Murexsul*, while these three taxa were also included in several papers by Petuch (1987, 1992, 1993, 1994). The literature was carefully studied and both new species described below were compared with numerous other taxa. A study by Merle & Houart (2003) and the discovery of an undescribed species also provided the opportunity to have a new look at the West Atlantic “*Muricopsis*-like” species which have

been combined with *Muricopsis* s.s. by many authors.

Abbreviations

IRSNB: Institut royal des Sciences naturelles de Belgique, Bruxelles, Belgium.

MNHN: Muséum national d'Histoire naturelle, Paris, France.

RH: collection R. Houart.

juv: juvenile.

lv: collected alive.

dd: empty shell.

Terminology used to describe the spiral cords and the internal denticles of the outer lip (based on Merle 1999, 2001) - (between brackets) = occasional

| | |
|-------|--|
| P | Primary cord |
| s | secondary cord |
| t | tertiary cord |
| ad | adapical |
| ab | abapical |
| IP | Infrasutural primary cord (primary cord on infrasutural ramp) |
| adis | adapical infrasutural secondary cord |
| abis | abapical infrasutural secondary cord |
| PI | Shoulder cord |
| P2-P6 | Primary cords of the convex part of the teleoconch whorl |
| s1-s6 | secondary cords of the convex part of the teleoconch whorl. example: s1 = secondary cord between P1 and P2; s2 = secondary cord between P2 and P3, etc. |
| ADP | adapertural primary cord on the siphonal canal |
| MP | median primary cord on the siphonal canal |
| ABP | abapertural primary cord on the siphonal canal |
| ads | adapertural secondary cord on the siphonal canal |
| ms | median secondary cord on the siphonal canal |
| abs | abapertural secondary cord on the siphonal canal |

APERTURE

| | |
|-------|-----------------------|
| ID | Infrasutural denticle |
| D1-D5 | Abapical denticles |

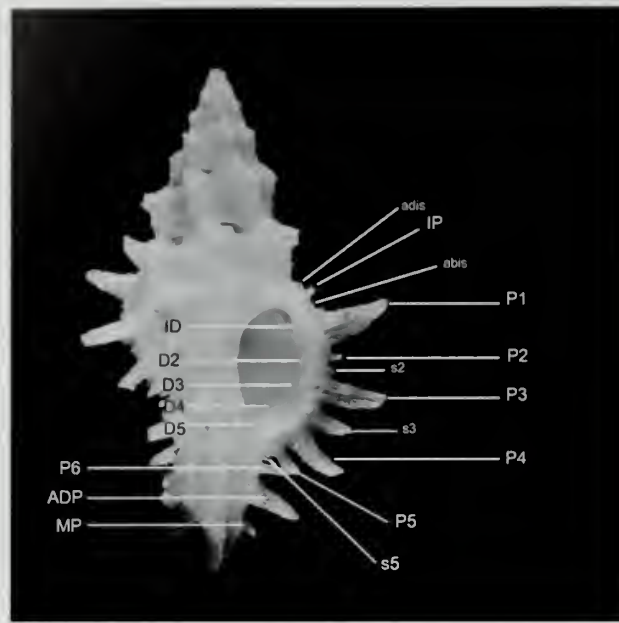


Fig. 1. Morphology of the spiral cords and the denticles in *Murexsul chesleri* n.sp.

SYSTEMATICS

Family **MURICIDAE** Rafinesque, 1815

Subfamily **MURICINAE** Rafinesque, 1815

Genus *Dermomurex* Monterosato, 1890

Subgenus *Dermomurex* s.s.

Type species by monotypy: *Murex scalarinus* Bivona, 1832 (= *Murex scalaroides* Blainville, 1826). Recent, Mediterranean.

Dermomurex (Dermomurex) colombi n. sp.

Figs 2, 3-5, 8

Type material. Martinique, Grande Anse, 14°30' N, 61°6' W, 15-25 m, in rough sand, under rocks, holotype MNHN N° Moll7006 (lv); 1 paratype RH (lv), 2 paratypes J. Colomb (lv).

Other material. Martinique (without other data), 2 RH (lv), 3 D. Lamy (2 lv, 1 dd).

Type locality. Martinique, Grande Anse, 15-25 m.

Distribution. Martinique, Lesser Antilles.

Description. Shell small for the subgenus, to 11.9 mm in length at maturity (paratype J. Colomb), slender, lanceolate, weakly nodose. Spire very high with 1.5-1.6 protoconch whorls and up to 6 weakly convex, elongate, weakly shouldered, nodose, teleoconch whorls. Suture impressed, partially obscured by broad buttress connecting preceding whorl.

Protoconch large, whorls rounded, smooth; terminal lip narrow, erect, weakly curved.

Axial sculpture of teleoconch whorls consisting of high, narrow varices: first to fourth whorls with 6

varices; from fifth whorl one varix out of two remaining as intervarical ridge; three varices and three intervarical ridges on penultimate and last whorls. Spiral sculpture of low, broad, smooth primary cords and numerous lirae. Primary cords indistinguishable on four adapical whorls, very weak on penultimate and last whorls. Last whorl with very low IP, P1-P4 of approximately same strength, more apparent on adapertural part of varices; P5 low, more than half the size of P4, P6 smallest, obsolete in some specimens. One paratype with ADP, MP and ABP broad, very low, almost indistinguishable; obsolete in other examined specimens. Intritacalx covering all teleoconch whorls, sculptured by numerous, narrow, low, flat, axial cords, crossed by numerous, narrow, rounded, axial lirae, giving the whole a latticed appearance with numerous small pits (Fig. 8).

Aperture small, ovate; columellar lip narrow, smooth, completely adherent; anal notch shallow, broad; outer lip weakly erect, undulate, with 6 weak, broad denticles within: ID shallow, D1-D5 weakly high, of approximately same strength; D2 split in holotype. Siphonal canal short, broad, strongly dorsally recurved, open. Intritacalx white or light ochre; when removed, shell appears light bluish-grey. Aperture glossy light ochre, occasionally with a small brown dot in front of D4 and D5.

Operculum and radula unknown.

Remarks. *Dermomurex (D.) elizabethae* (McGinty, 1840) (Fig. 7, 10), known from Florida, the Bahamas and Virgin Islands (Vokes, 1992: 72) has a broader, usually larger and more nodose shell, with higher varices on penultimate and last teleoconch whorls. It also has a different sculptured intritacalx, consisting of crowded, fine, rounded lirae, erratically crossed by axial striae (Fig. 10).

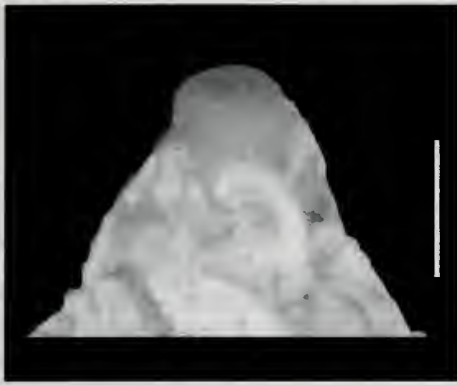


Fig. 2. Protoconch of *Dermomurex colombi* n.sp., paratype RH (scale bar 0.5 mm)

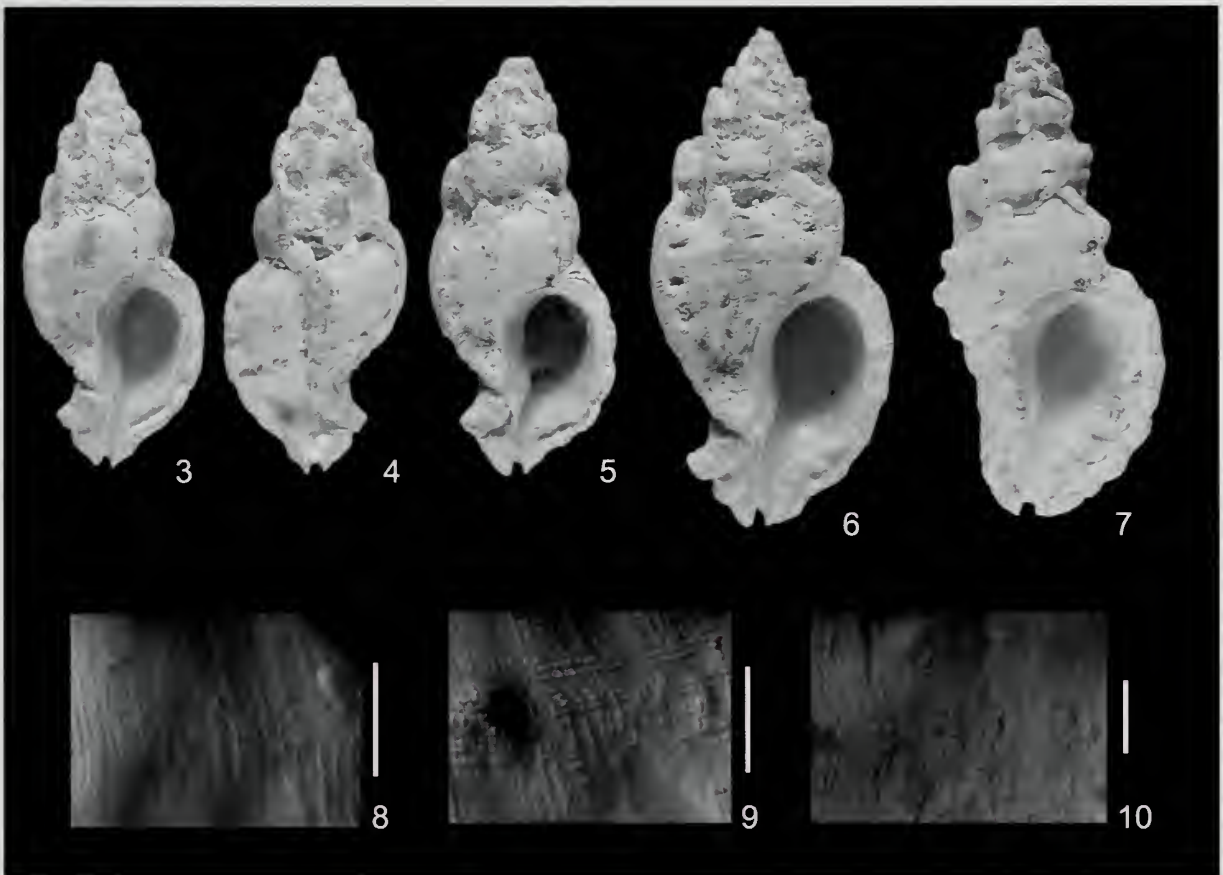
Dermomurex (D.) pauperculus (C.B. Adams, 1850) (Fig. 6, 9) from Florida to Brazil, and from Mexico to Panama (Vokes, 1992: 65) has an almost similar intritacalx. However, the axial striae are more irregularly placed and the spiral lirae are weakly

higher; it has a more rough aspect than *D. (D.) colombi* n. sp. (Fig. 9). *D. pauperculus* also has a lower spire, a broader and larger shell which reaches more than twice the size of an adult *D. colombi* with the same number of teleoconch whorls.

Dermomurex (D.) pacei Petuch, 1988 from Bahamas, Florida and Cuba, resembles the new species somewhat, but it also reaches a much larger size (15-20 mm), has more obvious spiral primary cords, fewer, larger spiral lirae, and a more angulate shell.

Dermomurex (D.) sarasuae Vokes, 1992 from Cuba, with a distribution extending to Honduras, *D. olssoni* Vokes, 1989 from the Bahamas, *D. glicksteini* Petuch, 1987 from Florida and the Bahamas, and *D. kaicherae* Petuch, 1985 from Virgin Islands to Colombia all reach a much larger adult size, and are more nodose with higher varices and higher spiral cords.

Etymology. The new species is named for Jacques Colomb from Marseille, France, a passionate *Murex* amateur.



Figures 3-10

3-5. *Dermomurex colombi* n.sp. **3-4.** Martinique, Grande Anse, 14°30' N, 61°6' W, 15-25 m, in rough sand, under rocks, holotype MNHN N° Moll7006; **5.** Paratype J. Colomb.

6. *D. pauperculus* (C.B. Adams, 1850), Mexico, Yucatan, Playa del carmen, 19 mm, RH.

7. *D. elizabethae* (McGinty, 1840), Florida, off Pompano Beach, 19.2 mm, RH.

8-10. Intritacalx. **8.** *D. colombi* n.sp.; **9.** *D. pauperculus* (C.B. Adams, 1850); **10.** *D. elizabethae* (McGinty, 1840) (scale bar: 0.5 mm).

Subfamily MURICOPSINAE Radwin & D'Attilio, 1971

Genus *Murexsul* Monterosato, 1890

Type species by original designation: *Murex octogonus* Quoy & Gaimard, 1832. Recent, New Zealand.

Discussion. The genera *Muricopsis* and *Murexsul* were recently studied by Merle & Houart (2003), particularly the primary cords of more than 60 species. The conclusion of this study has led to differentiating three derived patterns in *Muricopsis* and four in *Murexsul*.

Muricopsis possesses several apomorphies such as nodules on the teleoconch whorls and hypermorphic D2, lacking in the *Murexsul* group.

The primitive pattern in *Muricopsis*, including the type species, *Muricopsis cristatus* (Brocchi, 1814), and in *Muricopsis (Risomurex)* corresponds to a series of primary cords (P1-P5) on the convex part of the teleoconch whorl, and P6 to MP on the siphonal canal. From P1 to P6, the cords regularly decrease in strength, P6 being the smallest cord. Then a new increase of the relief starts with ADP, decreasing again until MP. Other patterns are the *Muricopsis josei* pattern (only one species included), the *M. zeteki* pattern, and the *M. suga* pattern. These patterns are distinguished from the primitive pattern in having atrophied P3 on last teleoconch whorls (*M. josei* Vokes, 1994), atrophied P2 on last whorls (*M. zeteki* pattern) or P6 that does not grow slower than P5 and ADP cords as in the primitive pattern (*M. suga* pattern).

The primitive pattern in *Murexsul* includes the type species *Murexsul octogonus* (Quoy & Gaimard, 1833) and a few others. The spiral pattern of primitive *Murexsul* is very comparable to that of

Muricopsis. The *Rolandiella* pattern (*Rolandiella* Marshall & Burch, 2000) includes two species. They differ in having P1 and P2 more spaced than in typical *Murexsul* on the first teleoconch whorl, but mainly in having P5 progressively atrophied during growth. This change generates a less ornamented band between P4 and ADP, which is broader than in primitive *Murexsul*. The *M. oxytatus* pattern, in which *M. chesleri* n. sp. is included, is characterized by a progressive atrophy of P2, and by a hypermorphic cord spine on P1, P4 and ADP. The *Xastilia* pattern (*Xastilia* Bouchet & Houart, 1994) is characterized by a progressive atrophy of P2 and P3 and by the hypermorphic spines on P1, P4 and ADP.

There is yet another pattern confined to three very small species, *Murexsul auratus* Kuroda & Habe, 1971, *M. charcoti* (Houart, 1991) and *M. micra* (Houart, 2001), usually less than 5 mm in length.

Murexsul chesleri n. sp.

Figs 1, 11, 13-18

Material examined. Honduras, NW Roatan Island, approximately 16°21' N, 86°35-38' W, 9-15 m, on reef, holotype IRSNB IG 30558/564 (lv)

Paratypes. Honduras, NW Roatan Island, approximately 16°21' N, 86°35-38' W, 9-15 m, on reef, 1 M. Bukstel, Boca Raton, Florida; 2 J. Chesler, 1 RH, 1 L. Zylman, Palm City, Florida.; Honduras, Roatan Island, 2 m, on dead coral, 1 MNHN N° Moll7008 (all lv)

Other material examined. Honduras, NW Roatan Island, off Sandy Bay, on reef, 1 juv, dd, J. Chesler, Roatan Island, 2 m, on dead coral, 1 RH (lv); 2-4 m, under coral rubble, 2 RH (lv); Utila Island, approximately 16°4' N, 86°54' W, 5 J. Chesler (3 juv) (lv), 1 RH (lv).



Figures 11-12.

11. Protoconch of *Murexsul chesleri* n.sp., coll. J. Chesler. 12. Protoconch and two first teleoconch whorls of *M. oxytatus* (M. Smith, 1838) (scale bar: 0.5 mm).

Type locality. Honduras, NW Roatan Island, 9-15 m, on reef.

Distribution. Honduras, Roatan and Utila Islands, living at 2-15 m.

Description. Shell medium sized for the genus, biconical, spinose, weakly squamous. Spire high with 1.75 protoconch whorls and up to 7 angulate, spinose, teleoconch whorls. Suture weakly adpressed, partially obscured by small axial lamellae.

Protoconch small, whorls rounded, smooth. Terminal lip weakly raised, slightly curved.

Axial sculpture of teleoconch whorls consisting of high, narrow varices, each with long or short, broad, primary and secondary spines, and few spinelets. First and second teleoconch whorls with 7 varices, other whorls with 5 or 6, last whorl with 6. Spiral sculpture of high, narrow, squamous, primary and secondary cords. First whorl with visible P1-P3; from second whorl P2 becomes reduced; last whorl of a juvenile with three teleoconch whorls with P1, s1, P2 reduced, P3, s3, P4, P5 and P6. P3-P6 decreasing in strength abapically. Last whorl of adult shells with adis, IP, abis, P1, P2, s2, P3, s3, (t), P4, (s4), (t), P5, (s5), P6, ADP, (ads), MP, (ms). P1, P3 and P4 of same strength, extending as long, broad, squamous spines on varices; spine of P3 longer, P5 weaker and smaller; P6 small; ADP longest spine on siphonal canal.

Aperture small, ovate; columellar lip narrow, flaring, smooth or with 1 or 2 elongate, weak nodes abapically; rim partially erect, adherent at adapical extremity; presence of a small parietal fold. Anal notch broad. Outer lip weakly erect, crenulate, with moderately strong denticles within: ID, D2, D3, D4, D5. D1 and D2 fused, D3 occasionally split. Siphonal canal moderately long, straight or weakly dorsally recurved, narrowly open, with small, acute, short spines.

White with brown spots on shoulder, between varices, between P1, P3 and P4, and on tip of siphonal canal; occasionally on spinelets. Aperture entirely glossy white.

Operculum dark brown, ovate, inverted tear-shaped with terminal nucleus in lower center; attached surface with broad, large callused rim.

Radula unknown.

Remarks. There are currently five Recent *Muricopsis*-like *Murexsul* species in the western Atlantic. All were discussed and illustrated by Vokes (1994): *Murexsul huberti* (Radwin & D'Attilio, 1976) (= *Muricopsis duffyi* Petuch, 1992), *M. oxytatus* (M. Smith, 1938) (= *Murex hexagonus* Lamarck, 1816 – not Gmelin, 1791), *M. sunderlandi* (Petuch, 1987), *M. warreni* (Petuch, 1993) and *M. zylmanae* (Petuch, 1993).

All of those except *M. oxytatus* are easily distinguishable from *M. chesleri* n. sp. and don't need to be compared here.

Adult shells of *M. chesleri* differ constantly from *M. oxytatus* (Figs 12, 19-22) in having a comparatively broader infrasutural ramp, a comparatively higher, narrower spire, and occasionally flatter spines. The width of the last teleoconch whorl is comparatively similar to *M. oxytatus* but the spire whorls are narrower in *M. chesleri*. In *M. chesleri*, the spine of P3 is longer than P1, P1 and P4 being of the same length. In *M. oxytatus*, P1 is longer, being the longest spine, occasionally with P3 being of the same length; P4 is slightly shorter. The particular color of *M. chesleri*, white spotted with brown, also distinguish that species from any other *Murexsul* from the Western Atlantic. An usually larger form of *M. chesleri* occurs in Utila (Figs 17-18). Besides its length, it has a similar shell morphology, but some specimens are less colorful; it is here tentatively considered as conspecific with *M. chesleri*.

ACKNOWLEDGEMENTS. I am very thankful to Jacques Colomb (Marseille, France) and to Dominique Lamy (Pointe-à-Pitre, Guadeloupe) for the loan and gift of the type material of *Dermomurex (D.) colombi*, to John Chesler (Plantation, Florida) for the loan and gift of *Murexsul chesleri* and the loan of other West Atlantic *Murexsul* species, and to Claude Vilvens (Oupeye, Belgium) for his welcome suggestions on the manuscript.

REFERENCES

- Merle, D. 1999. *La radiation des Muricidae (Gastropoda : Neogastropoda) au Paléogène : approche phylogénétique et évolutive*. Paris. Thèse de doctorat du Muséum national d'Histoire naturelle : i-vi, 1-499.
- Merle, D. 2001. The spiral cords and the internal denticles of the outer lip in the Muricidae: terminology and methodological comments. *Novapex* 2(3): 69-91.
- Merle, D. & Houart, R. 2003. Ontogenetic changes of the spiral cords as keys innovation of the muricid sculptural patterns: the example of the *Muricopsis-Murexsul* lineages (Gastropoda: Muricidae: Muricopsinae). *C.R. Palevol.* 2: 547-561.
- Petuch, E.J. 1987. New Caribbean molluscan faunas, CERF, Charlottesville, Virginia: 1-154 + addendum A1-A4.
- Petuch, E.J. 1992. New mollusks from Los Roques Archipelago, Venezuela, an isolated Caribbean Atoll. *La Conchiglia* 23(262): 5-11.
- Petuch, E.J. 1993. Molluscan discoveries from the tropical western Atlantic region. *La Conchiglia* 25(266): 51-56.
- Petuch, E.J. 1994. *Atlas of Florida fossil shells (Pliocene and Pleistocene Marine Gastropoda)*. Chicago Spectrum Press, Evanston, Illinois: 1-394.

- Vokes, E.H. 1975. Cenozoic *Murex* of the West Atlantic Region. Part VI, *Aspella* and *Dermomurex*. *Tulane Studies in Geology and Paleontology* 11(3): 121-162.
- Vokes, E.H. 1992. Cenozoic Muricidae of the western Atlantic region. Part IX - *Pterynotis*, *Poirieria*, *Aspella*, *Dermomurex*, *Calotrophon*, *Acantholabia*, and *Attiliosa*; additions and corrections. *Tulane Stud. Geol. Paleont.*, 25(1-3): 1-108.
- Vokes, E.H. 1994. Cenozoic Muricidae of the western Atlantic region. Part X - The subfamily Muricopsinae. *Tulane Stud. Geol. Paleont.* 26(2-4): 49-160.

Figures 13-22.

13-18. *Murexsul chesleri* n.sp. **13-14.** Honduras, NW Roatan Island, approximately 16°21' N, 86°35-38' W, 9-15 m, holotype IRSNB IG 30558/564; **15-16.** Honduras, NW Roatan Island, approximately 16°21' N, 86°35-38' W, 9-15 m, paratype J. Chesler; **17-18.** Honduras, Utila Island, 32.9 mm.

19-22. *Murexsul oxytatus* (M. Smith, 1938). **19.** Cuba, La Habana, RH, 37.7 mm; **20.** Florida, Off Boca raton, 18 m, coll. J. Chesler, 39.1 mm; **21.** Puerto Rico, La Parguera, coll. J. Chesler, 31.6 mm; **22.** Turks and Caicos, 12 m, on dead coral, coll. J. Chesler, 32.7 mm.

